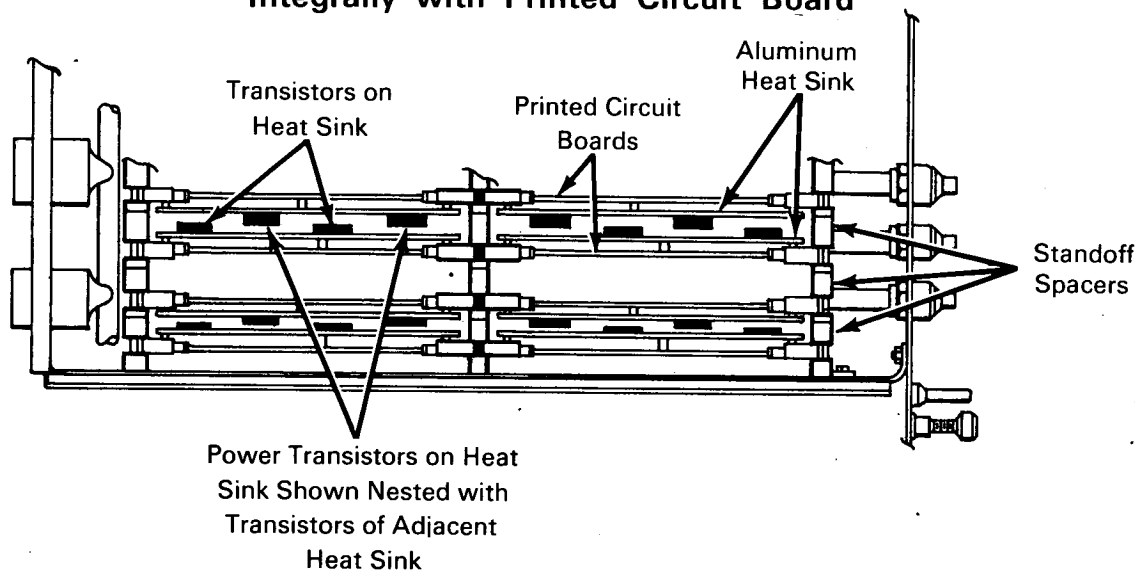


NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Aluminum Heat Sink Enables Power Transistors to Be Mounted Integrally with Printed Circuit Board



The problem:

To design a compact electronic module that contains an integral heat sink for power transistors. Previous designs separated the power transistors from the associated circuitry, requiring additional wiring, complicating functional testing and maintenance, and requiring substantially more space.

The solution:

A flat type aluminum heat sink for power transistors that mounts directly on the printed circuit board containing the associated circuitry.

How it's done:

The power transistors are mounted on the flat plate aluminum heat sink. Standoff spacers are used to attach the heat sink to the printed circuit board containing the remainder of the circuitry associated with the power transistors.

Notes:

1. When the power transistors are mounted asymmetrically on the heat sink, a gain in packaging density may be achieved where adjacent modules are reversed.
2. The assembled modules are mounted in a standard design of a slide rail mounted chassis assembly utilizing conventional printed circuit board techniques and connectors.
3. The attached heat sink increases the mechanical strength of the printed circuit board.
4. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10426

(continued overleaf)

Patent status:

No patent action is contemplated by NASA.

Source: R. C. Seaward
of North American Aviation, Inc.
under contract to
Marshall Space Flight Center
(MFS-13663)